AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (currently amended): An image processing method of performing a halftone dot processing in which first image data representative of pixel values of a plurality of pixels constituting an image is converted into second image data representative of dot patterns of halftone dots,

wherein said image processing method performs the halftone dot processing in which a first dot% of dot patterns, wherein mutually contacting dot patterns first appear with respect to an identical direction on the image, in the event that the halftone dot processing is repeatedly performed while pixel values of pixels on an image comprising a plurality of pixels all of which are same in pixel value are sequentially varied from a lower density end to a higher density end uniformly, is different from a second dot% of dot patterns wherein all the dot patterns, which are adjacent to one another with respect to the identical direction, are in contact with one another.

2. (original): An image processing method according to claim 1, wherein said halftone dot processing is a process for comparing pixel values of pixels on an image represented by the first image data with thresholds of a halftone pattern comprising an arrangement of thresholds, which are mutually superimposed, in the event that the halftone pattern is superimposed on the image, to convert the pixel values of the respective pixels on the image into binary values or multi-values more than the binary values, and

said halftone dot processing is performed using a halftone pattern in which thresholds are adjusted in such a manner that the first dot% regarding a same direction on the image is different from the second dot%, said halftone pattern being concerned with such a pattern that when a dot cell associated with one halftone dot is regarded as a unit, there are arranged a plurality of sorts of dot cells in which at least part of threshold arranged on the dot cells are relatively different from pixel values on an image area on which the dot cells are superimposed.

3. (currently amended): An image processing method according to claim 1, wherein said halftone dot processing is performed in such a manner that the first dot% of dot patterns, wherein mutually contacting dot patterns first appear with respect to an identical direction on the image, in the event that the halftone dot processing is repeatedly performed while pixel values of pixels on an image comprising a plurality of pixels all of which are same in pixel value are sequentially varied from a lower density end to a higher density end uniformly, is different from the second dot% of dot patterns wherein all the dot patterns, which are adjacent to one another with respect to the identical direction, are in contact with one another, and further the first dot%-to-first dot% with respect to the mutually different direction, and the second dot%-to-second dot% with respect to the mutually different direction are mutually different, respectively.

4. (original): An image processing method according to claim 3, wherein said halftone dot processing is a process for comparing pixel values of pixels on an image represented by the first image data with thresholds of a halftone pattern comprising an arrangement of thresholds, which are mutually superimposed, in the event that the halftone pattern is superimposed on the

image, to convert the pixel values of the respective pixels on the image into binary values or multi-values more than the binary values, and

said halftone dot processing is performed using a halftone pattern in which thresholds are adjusted in such a manner that the first dot%-to-first dot% with respect to the mutually different direction, and the second dot%-to-second dot% with respect to the mutually different direction are mutually different, respectively, said halftone pattern being concerned with such a pattern that when a dot cell associated with one halftone dot is regarded as a unit, there are arranged a plurality of sorts of dot cells in which at least part of thresholds arranged on the dot cells are relatively different from pixel values on an image area on which the dot cells are superimposed.

5. (original): An image processing method according to claim 2, wherein said halftone dot processing is performed using a halftone pattern in which there are arranged a plurality of sorts of dot cells for forming dot patterns, which are identical with one another in growth process with respect to the shape and are different from one another in degree of growth in at least part of mean dot% range, in the event that the halftone dot processing is repeated while pixel values on the image are sequentially varied from the lower density end to the higher density end uniformly.

6. (original): An image processing method according to claim 4, wherein said halftone dot processing is performed using a halftone pattern in which there are arranged a plurality of sorts of dot cells for forming dot patterns, which are identical with one another in growth process with respect to the shape and are different from one another in degree of growth in at least part of

mean dot% range, in the event that the halftone dot processing is repeated while pixel values on the image are sequentially varied from the lower density end to the higher density end uniformly.

7. (original): An image processing method according to claim 2, wherein said halftone dot processing is performed using a halftone pattern in which there are arranged a plurality of sorts of dot cells for forming dot patterns, which grow while maintaining the same dot% and are mutually different with respect to the shape in at least part of dot% range, in the event that the halftone dot processing is repeated while pixel values on the image are sequentially varied from the lower density end to the higher density end uniformly.

8. (original): An image processing method according to claim 4, wherein said halftone dot processing is performed using a halftone pattern in which there are arranged a plurality of sorts of dot cells for forming dot patterns, which grow while maintaining the same dot% and are mutually different with respect to the shape in at least part of dot% range, in the event that the halftone dot processing is repeated while pixel values on the image are sequentially varied from the lower density end to the higher density end uniformly.

9. (original): An image processing method according to claim 2, wherein said halftone dot processing is performed using a halftone pattern in which there are arranged a plurality of sorts of dot cells wherein there are arranged thresholds which are relatively adjusted to pixel values of the image area to be superimposed in such a manner that a difference between

minimum dot% of the first dot% regarding mutually different directions and maximum dot% of the second dot% regarding mutually different directions is not less than 1%.

10. (original): An image processing method according to claim 4, wherein said halftone dot processing is performed using a halftone pattern in which there are arranged a plurality of sorts of dot cells wherein there are arranged thresholds which are relatively adjusted to pixel values of the image area to be superimposed in such a manner that a difference between minimum dot% of the first dot% regarding mutually different directions and maximum dot% of the second dot% regarding mutually different directions is not less than 1%.

11. (original): An image processing apparatus for performing a halftone dot processing in which first image data representative of pixel values of a plurality of pixels constituting an image is converted into second image data representative of dot patterns of halftone dots, said image processing apparatus comprising:

a data conversion unit for comparing pixel values of pixels on an image represented by said first image data with a threshold of halftone patterns comprising an arrangement of thresholds, which are mutually superimposed, in the event that the halftone patterns are superimposed on the image, to convert the pixel values of the respective pixels on the image into multi-values not less than binary values, so that the second image data representative of dot patterns of the respective halftone dots is produced; and

a halftone pattern storage unit for storing the halftone patterns in which thresholds are adjusted so as to obtain dot patterns wherein a first dot% of dot patterns, wherein mutually

contacting dot patterns first appear with respect to the same direction on the image, in the event that the halftone pattern is concerned with such a halftone pattern that when a dot cell associated with one halftone dot is regarded as a unit, there are arranged a plurality of sorts of dot cells in which at least part of thresholds arranged on the dot cell is different from among dot cells, and in addition in the event that the data conversion unit repeatedly performs the data conversion processing, using the halftone patterns, while the pixel values of the pixels on the image comprising a plurality of pixels all of which are same in pixel value are sequentially varied from the lower density end to the higher density end uniformly, is different from a second dot% of dot patterns wherein all the dot patterns, which are adjacent to one another with respect to the same direction, are in contact with one another,

wherein said data conversion unit performs the data conversion processing using the halftone patterns stored in said halftone pattern storage unit.

12. (original): An image processing apparatus according to claim 11, wherein said halftone pattern storage unit stores the halftone patterns in which thresholds are adjusted so as to obtain dot patterns wherein a first dot% of dot patterns, wherein mutually contacting dot patterns first appear with respect to the same direction on the image, in the event that the halftone pattern is concerned with such a halftone pattern that when a dot cell associated with one halftone dot is regarded as a unit, there are arranged a plurality of sorts of dot cells in which at least part of thresholds arranged on the dot cell is different from among dot cells, and in addition in the event that the data conversion unit repeatedly performs the data conversion processing, using the halftone patterns, while the pixel values of the pixels on the image comprising a plurality of

pixels all of which are same in pixel value are sequentially varied from the lower density end to the higher density end uniformly, is different from a second dot% of dot patterns wherein all the dot patterns, which are adjacent to one another with respect to the same direction, are in contact with one another, said halftone patterns being a pattern in which thresholds are adjusted in such a manner that mutually different dot patterns are obtained as to the first dot%-to-first dot% with respect to the mutually different direction, and as to the second dot%-to-second dot% with respect to the mutually different direction.

13. (original): An image processing apparatus for performing a halftone dot processing in which first image data representative of pixel values of a plurality of pixels constituting an image is converted into second image data representative of dot patterns of halftone dots, said image processing apparatus comprising:

a data correction unit for performing an arithmetic operation between pixel values of pixels on an image represented by said first image data and correction values of a correction pattern comprising an arrangement of correction values, which are mutually superimposed, in the event that the correction pattern is superimposed on the on the image, so that there is executed a data correction processing for generating third image data representative of pixel values after correction of a plurality of pixels constituting the image; and

a data conversion unit for comparing pixel values of pixels on an image represented by the third image data generated in said data correction unit with a threshold of a halftone pattern comprising an arrangement of thresholds, which are mutually superimposed, in the event that the halftone pattern is superimposed on the image, to convert the pixel values of the respective pixels

on the image into multi-values not less than binary values, so that second image data representative of dot patterns of the respective halftone dots is generated,

wherein said data conversion unit performs the data correction processing using a correction pattern in which correction values are adjusted so as to obtain dot patterns wherein a first dot% of dot patterns, wherein mutually contacting dot patterns first appear with respect to the same direction on the image, in the event that the correction pattern is concerned with such a correction pattern that when a correction cell associated with one halftone dot is regarded as a unit, there are arranged a plurality of sorts of correction cells in which at least part of correction values arranged on the correction cell is different from among correction cells, and in addition in the event that the data correction processing by said data correction unit and the data conversion processing by said data conversion unit are repeatedly performed while the pixel values of the pixels on the image comprising a plurality of pixels all of which are same in pixel value are sequentially varied from the lower density end to the higher density end uniformly, is different from a second dot% of dot patterns wherein all the dot patterns, which are adjacent to one another with respect to the same direction, are in contact with one another.

14. (original): An image processing apparatus according to claim 13, wherein said data conversion unit performs the data correction processing using a correction pattern in which correction values are adjusted so as to obtain dot patterns wherein a first dot% of dot patterns, wherein mutually contacting dot patterns first appear with respect to the same direction on the image, in the event that the correction pattern is concerned with such a correction pattern that when a correction cell associated with one halftone dot is regarded as a unit, there are arranged a

plurality of sorts of correction cells in which at least part of correction values arranged on the correction cell is different from among correction cells, and in addition in the event that the data correction processing by said data correction unit and the data conversion processing by said data conversion unit are repeatedly performed while the pixel values of the pixels on the image comprising a plurality of pixels all of which are same in pixel value are sequentially varied from the lower density end to the higher density end uniformly, is different from a second dot% of dot patterns wherein all the dot patterns, which are adjacent to one another with respect to the same direction, are in contact with one another, said correction pattern being a pattern in which correction values are adjusted in such a manner that mutually different dot patterns are obtained also as to the first dot%-to-first dot% with respect to the mutually different direction, and the second dot%-to-second dot% with respect to the mutually different direction.

15. (new): The method of claim 1, wherein said first image data is converted into second image data by comparing said pixel values with thresholds of a halftone pattern comprising an arrangement of thresholds, said thresholds of a halftone pattern further comprising a plurality of basic patterns which thresholds are adjusted such that dot patterns are formed which are identical to each other in growth process in respect to shape, but are mutually different from one another in degree of growth.

16. (new): The apparatus of claim 11, wherein said threshold of halftone patterns further comprises a plurality of basic patterns which thresholds are adjusted such that dot patterns

formed are identical to each other in growth process in respect to shape, but are mutually different from one another in degree of growth.

17. (new): A method of converting image data, comprising:

generating a super cell halftone pattern comprising a plurality of patterns;

superimposing said super cell on said image data; and

generating dot patterns of halftone dots;

wherein said plurality of patterns are generated from an original basic pattern.

18. (new): The method of claim 17, wherein said generating dot patterns further comprises comparing said image data with thresholds stored in said super cell.

19. (new): The method of claim 17, wherein adjacent dot patterns of said generated dot patterns gradually come into contact with one another when dot density of said dot patterns is gradually increased.

20. (new): The method of claim 19, wherein said plurality of patterns comprises patterns A, B and C.

21. (new): The method of claim 20, wherein said pattern B is said original basic pattern and adjacent dot patterns of halftone dots generated with patterns A and C come into contact with one another at dot densities of $(D_B+\beta)$ and $(D_B-\beta)$ respectively, wherein D_B is the dot

density at which adjacent dot patterns of halftone dots generated with pattern B come into contact with one another, and β is a dot density variable of at least 0.5%.

22. (new): The method of claim 17, wherein a number of contacting adjacent dot patterns gradually increases when a dot density of said dot patterns of halftone dots increases.

23. (new): The method of claim 22, wherein said number of contacting adjacent dot patterns increases in incremental steps, the total increment corresponding to a change in dot density of at least 1%.

24. (new): The method of claim 17, wherein dot patterns of halftone dots generated from said super cell halftone pattern comprise a varied plurality of patterns which are identical with one another in growth process with respect to shape, but are mutually different from one another in degree of growth.

25. (new): The method of claim 17, wherein adjacent ones of said generated dot patterns come into contact with one another incrementally throughout an expanded range of dot densities.

26. (new): The method of claim 17, wherein a number of connecting points between adjacent dot patterns to be simultaneously connected is reduced.